CHANGE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

7031.2C CHG 9

4/25/94

SUBJ: AIRWAY PLANNING STANDARD NUMBER ONE - TERMINAL AIR NAVIGATION FACILITIES AND AIR TRAFFIC CONTROL SERVICES

1. PURPOSE. This change transmits revised pages to Chapter 2, Navigation Aids; revised pages to Appendix 2, Summary of Establishment and Discontinuance Criteria; and adds Appendix 5, Establishment and Discontinuance Criteria for LORAN-C Nonprecision Approach Procedures--Final Rule. Pursuant to Public Law 100-223, these criteria were recently promulgated by FAA through Federal administrative regulation. They are reproduced in APS-1 together with other criteria established by FAA order to facilitate their application.

2. EXPLANATION OF CHANGE. This change provides establishment criteria to apply to initial establishments of LORAN-C nonprecision approaches together with discontinuance criteria for these approaches. Details on the development of these criteria are contained in the report FAA-APO-90-5, "Establishment Criteria for LORAN-C Approach Procedures, FAA-APO-90-5, June 1990." Copies of this report are available from APO-220.

3. DISPOSITION OF TRANSMITTAL. After filing the attached pages, this change transmittal should be retained.

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John M. Rodgers
Director of Aviation Policy, Plans, and Management Analysis

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3. The ratio of life-cycle benefits to life-cycle costs equals or exceeds one, based on the benefit/cost methodology outlined in Report FAA-APO-88-14, "Establishment Criteria for Runway Visual Range (RVR) System at Nonprecision Instrumented Runway."

(b) Discontinuance. Reserved.

* (7) LORAN-C Nonprecision Approach.

(a) Establishment. Establishment criteria have been promulgated through administrative regulation. The Final Rule, published in the Federal Register on August 11, 1993, is reproduced in Appendix 5, Establishment and Discontinuance Criteria for LORAN-C Nonprecision Approaches--Final Rule. The benefit/cost analysis underlying the Final Rule is presented in Report FAA-APO-90-5, "Establishment Criteria for LORAN-C Approach Procedures." The regions shall submit site-specific data required to apply the criteria and validate candidacy with their response to the annual Call for Estimates. *

* (b) Discontinuance. A LORAN-C nonprecision approach is a candidate for discontinuance as specified in administrative regulations published in the Federal Register on August 11, 1993, and reproduced in appendix 5. *

b. Discontinuance.

(1) An LDA (paragraph 22a(1)), TVOR (paragraph 22a(2)), or lighting system for nonprecision approach (paragraph 22a(5)) at an airport recording less than 100 annual instrument approaches and 1,095 scheduled passenger originations is a candidate for discontinuance.

(2) A DME with localizer/marker beacon is a candidate for discontinuance when the total ratio value formula of paragraph 22a(3) is less than 0.6 and when justified by a benefit/cost analysis.

(3) A VASI, established as a component of a straight-in nonprecision approach facility, is a candidate for decommissioning when the ratio value computed through use of the formula in paragraph 22a(4) is less than 0.50 for one annual count period.

c. Improvements and New Facilities. Existing terminal instrument approach systems frequently require improvements and/or additional facilities. Such improvements are usually made only when there exists a reasonable relationship between the operational benefits to be realized and the costs involved in accordance with the following provisions:

(1) A terminal instrument approach system with 500 or more annual instrument approaches or 4,500 or more scheduled annual passenger originations qualifies for those improvements and/or new facilities that satisfy an operational requirement or facilitate the flow of IFR traffic at the airport. A level of 500 or more annual instrument approaches or 4,500 or more scheduled annual passenger originations normally assures a cost per instrument approach that is commensurate with the benefit derived from the improvement and/or additional facility.

(2) A terminal instrument approach system with 200 to 499 annual instrument approaches and 1,825 to 4,499 or more scheduled annual passenger originations is a candidate for improvements and/or additional facilities that satisfy an operational requirement or facilitate the flow of IFR traffic at the airport provided that the additional cost does not result in a cost per instrument approach that exceeds the benefit derived from the improvement and/or additional facility.

(3) A terminal instrument approach system with less than 200 annual instrument approaches and less than 1,825 scheduled annual passenger originations is not a candidate for improvements or additional facilities. At that activity level, the additional cost per instrument approach resulting from the improvement or additional facility is not commensurate with the benefit derived. Any improvements to terminal instrument approach systems at airports in this category will be limited to the correction of a critical situation and shall be justified by an individual staff study.

d. Dualization of Localizer/Markers or Terminal VORs. Dual equipment may be provided when a study confirms an operational requirement supported by cost versus benefit analysis.

23. VOR TEST SIGNAL (VOT).

a. Establishment. Installation of a VOR Test Signal (VOT) providing service to one or more airports is authorized when there is no other reasonable means of complying with subparagraph b or c of Federal Aviation Regulation 91.25. The relocation of a VOT is authorized when consolidation (area concept) of existing VOT's can be achieved. However, this consolidation shall not deprive locations that continue to have a requirement for VOT signals.

b. Discontinuance. The VOR Test Signal (VOT) shall be discontinued when the installation of a new VOR eliminates the need for a VOT.

24.-25. RESERVED.

FIGURE 1. SUMMARY OF ESTABLISHMENT AND DISCONTINUANCE CRITERIA FOR CHAPTER 2, NAVIGATION AIDS (CONTINUED)

Facility or Service	Establishment	Discontinuance	Additional Facilities or Improvements
Instrument Landing System (ILS) with approach lights, Par. 21		Decommission if ratio value sum is less than 1.0 and is justified by benefit/cost study.	
* Runway Visual Range (RVR) at Category I Instrument Landing System (ILS), Par. 21c(1)	Sum of ratio values equals or exceeds 1.00 plus benefit/cost study.	Sum of ratio values is less than 0.40 and is justified by benefit/cost study.	*
LDA or TVOR nonprecision instrument approach systems, Par. 22a(1) or 22a(2)	200 or more annual instrument approaches OR 1,825 or more scheduled annual passenger originations.	100 or less annual instrument approaches and 1,095 or less scheduled annual originations.	500 or more annual instrument approaches, OR 4,500 or more scheduled annual passenger originations, OR between 200 and 499 annual instrument approaches, OR 1,825 and 4,499 scheduled annual passenger originations plus a staff study.

FIGURE 1. SUMMARY OF ESTABLISHMENT AND DISCONTINUANCE CRITERIA FOR CHAPTER 2. NAVIGATION AIDS (CONTINUED)

Facility or Service	Establishment	Discontinuance	Additional Facilities or Improvements
DME with localizer/marker, Par.22a(3)	Meet annual instrument approach criteria and benefit/cost evaluation.	Below 60 percent of establishment criteria levels and benefit/cost evaluation.	
Visual Approach Slope Indicator (VASI) for nonprecision approach, Par. 22a(4)	$\frac{\text{Landings}}{14{,}000} + \frac{\text{AIA's}}{120} = 1.0$	Decommission if establishment ratio is less than 0.50.	
Lighting aids nonprecision approach system, Par 22a(5)	300 or more annual instrument approaches OR 2,725 annual passenger originations.	With the approach system when there are less than 100 annual instrument approaches and less than 1,095 annual passenger originations.	
Runway Visual Range (RVR) at Nonprecision Instrumented Runway, Par. 22a(6)	Benefit/cost ratio of 1.0 or greater	None	
* LORAN-C Nonprecision Approach, Par. 22a(7)	Benefit/cost ratio of 1.0 or greater.	Present value of continued maintenance costs exceeds present value of remaining life-cycle benefits.	*

FIGURE 1. SUMMARY OF ESTABLISHMENT AND DISCONTINUANCE CRITERIA FOR CHAPTER 2, NAVIGATION AIDS (CONTINUED)

Facility or Service	Establishment	Discontinuance	Additional Facilities or Improvements
VOR Test Signal (VOT), Par. 23	No additional VOT facilities will be established unless justified by an evaluation of requirements peculiar to a specific location in accordance with FAR 91.25.	Existing facilities will be decommissioned if the cost of maintaining the service exceeds the benefits derived, as determined by a staff study.	
Section 2. RADAR SERVICES Airport Surveillance Radar with Air Traffic Control Radar Beacon System and Automated Radar Terminal System (ASR/ATCRBS/ARTS), Par. 26	The airport ratio value or the area ratio value is 1.0 or greater.	The airport ratio value or the area ratio value is less than 0.35.	Improvements: 25,000 or more annual instrument operations OR between 15,000 and 25,000 annual instrument operations. A benefit/cost study may be required for major improvements. Remoted Radar Bright Display Scope: 30,000 or more annual itinerant operations and operationally adequate low altitude coverage is assured. TRACON establishment or conversion: 125,000 or more annual itinerant operations or 60,000 or more annual instrument operations. Establishment candidates are required to satisfy criteria within 2 years of the year of budget submission.

FIGURE 1. SUMMARY OF ESTABLISHMENT AND DISCONTINUANCE CRITERIA FOR CHAPTER 2, NAVIGATION AIDS (CONTINUED)

Facility or Service	Establishment	Discontinuance	Additional Facilities or Improvements
Precision Approach Radar (PAR), Par. 27	None	With Individual justification	

*APPENDIX 5. ESTABLISHMENT AND DISCONTINUANCE CRITERIA FOR LORAN-C NONPRECISION APPROACH PROCEDURES--FINAL RULE

This appendix contains the Final Rule on Establishment and discontinuance Criteria for LORAN-C Approach Procedures, as signed by the Administrator. The criteria are further explained in "Establishment Criteria For LORAN-C Approach Procedures," FAA-APO-90-5, June 1990. A discussion of the criteria and public comments on the criteria are contained in Federal Register Vol. 58, No. 153, Wednesday August 11, 1993, Rules and Regulations, 42814-42818.

The FAA is amending Part 170 of the Federal Aviation Regulations (14 CFR Part 170) by adding Subpart C which reads as follows:

PART 170--ESTABLISHMENT AND DISCONTINUANCE CRITERIA FOR AIR TRAFFIC CONTROL SERVICES AND NAVIGATIONAL FACILITIES

1. The authority citation for part 170 is revised to read as follows:

Authority: 49 U.S.C. app. 1343, 1346, 1348, 1354(a), 1355, 1401, 1421, 1422, through 1430, 1472(c), 1502, and 1522; 49 U.S.C. 106(g).

2. Part 170 is amended by adding subpart C consisting of § § 170.21, 170.23, and 170.25 to read as follows:

Sec.
170.21 Scope.
170.23 LORAN-C establishment criteria.
170.25 LORAN-C discontinuance criteria.

Subpart C--LORAN-C

§ Section 170.21 Scope
This subpart sets forth establishment and discontinuance criteria for LORAN-C.

§ Section 170.23 LORAN-C establishment criteria.

(a) The criteria in paragraphs (a)(1) through (a)(6) of this section, along with general facility and navigational aid establishment requirements, must be met before a runway can be eligible for LORAN-C approach.

(1) A runway must have landing surfaces judged adequate by the FAA to accommodate aircraft expected to use the approach and meet all FAA-required airport design criteria for nonprecision runways. *

* (2) A runway must be found acceptable for instrument flight rules operations as a result of an airport airspace analysis conducted in accordance with the current FAA regulations and provisions.

(3) The LORAN-C signal must be of sufficient quality and accuracy to pass an FAA flight inspection.

(4) It must be possible to remove, mark, or light all approach obstacles in accordance with FAA marking and lighting provisions.

(5) Appropriate weather information must be available.

(6) Air-to-ground communications must be available at the initial approach fix minimum altitude and at the missed approach altitude.

(b) A runway meets the establishment criteria for a LORAN-C approach when it satisfies paragraphs (a)(1) through (a)(6) of this section and the estimated value of benefits associated with the LORAN-C approach equals or exceeds the estimated costs (benefit-cost ratio equals or exceeds one). As defined in § 170.3 of this part, the benefit-cost ratio is the ratio of the present value of the LORAN-C life-cycle benefits (PVB) to the present value of LORAN-C life-cycle costs (PVC):

$PVB/PVC \geq 1.0$.

(c) The criteria do not cover all situations that may arise and are not used as a sole determinant in denying or granting the establishment of nonprecision LORAN-C approach for which there is a demonstrated operational or air traffic control requirement.

§ **Section 170.25 LORAN-C** discontinuance criteria.

A LORAN-C nonprecision approach may be subject to discontinuance when the present value of the continued maintenance costs (PVCM) of the LORAN-C approach exceed the present value of its remaining life-cycle benefits (PVB):

$PVB/PVCM<1.0$

Issued in Washington, DC on August 4, 1993.

/s/

Joseph M. Del Balzo
Acting Administrator *

*U.S. G.P.O.:1994-301-717:80655